

EPICS Motion Support

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6/14/11



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Overview

Current EPICS motion support

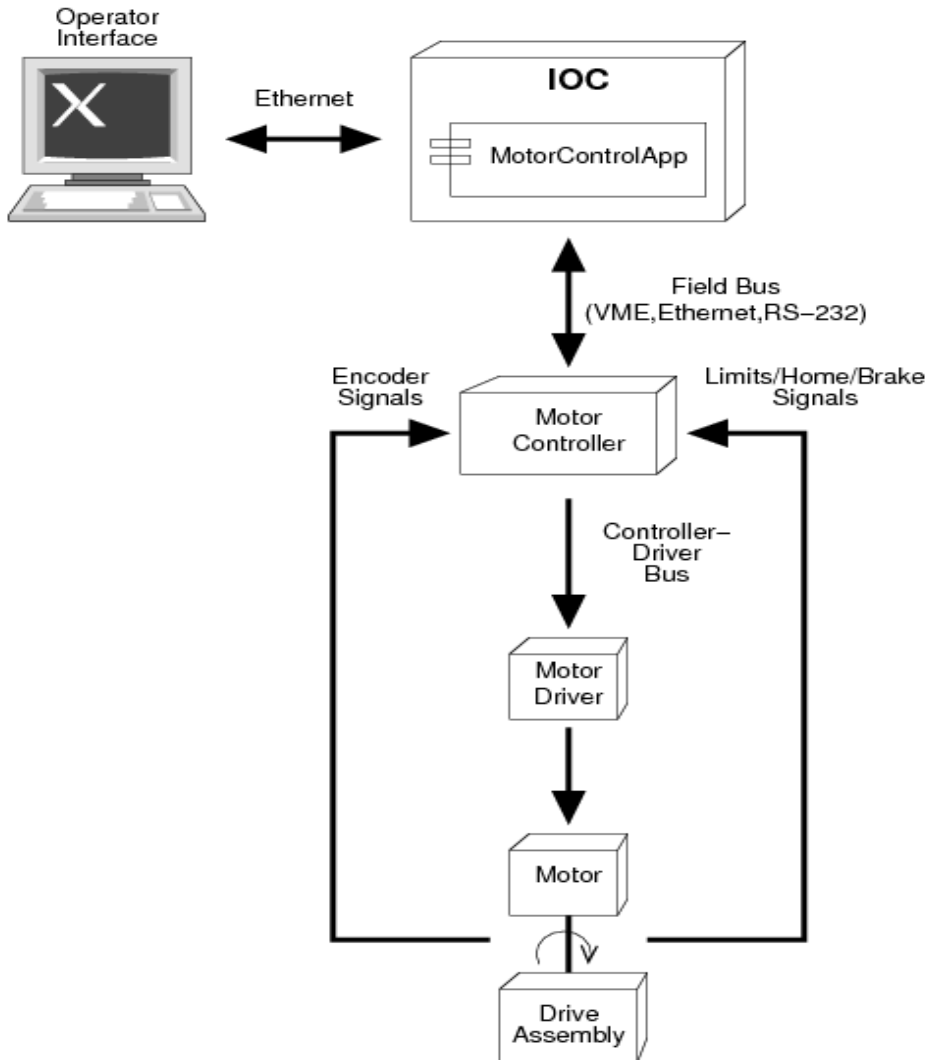
- Motor Record
- Hardware interface: 3 generations

Alternative Designs

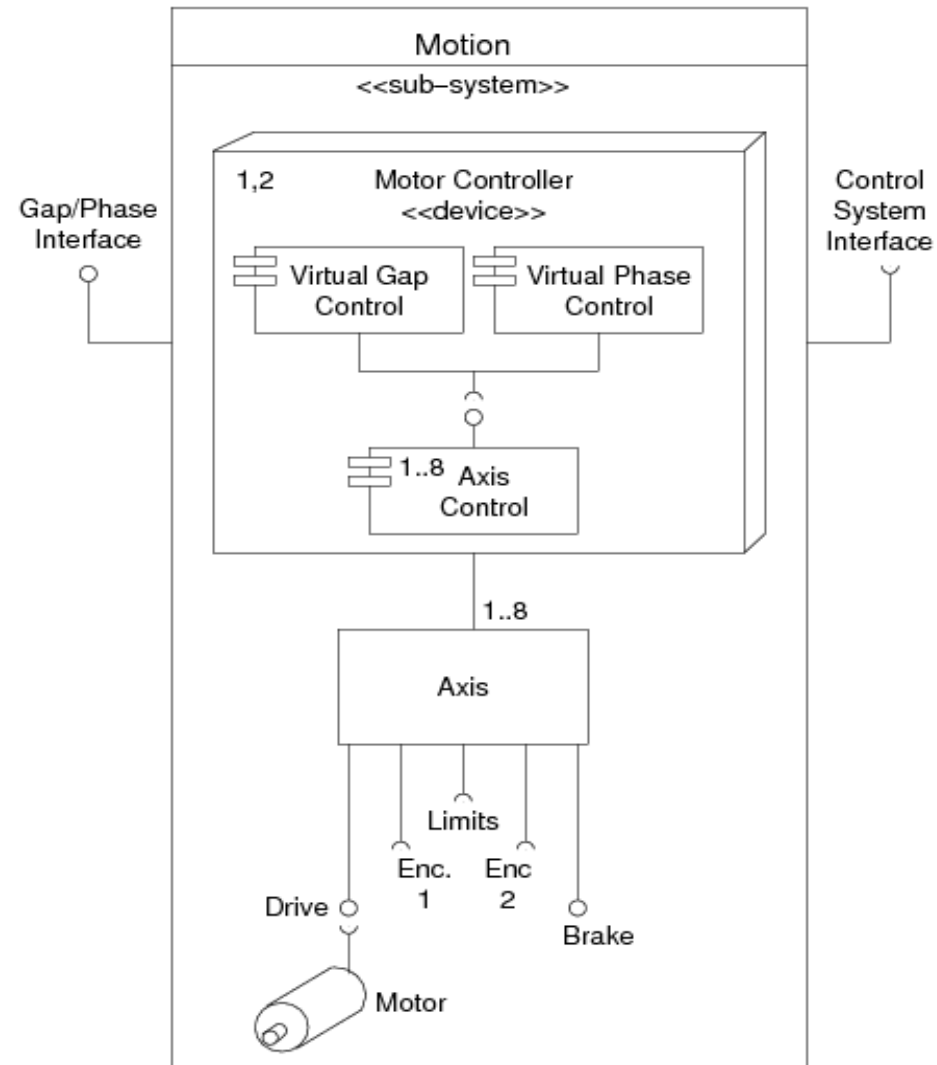
Conclusions & Next Steps

The Model

General System

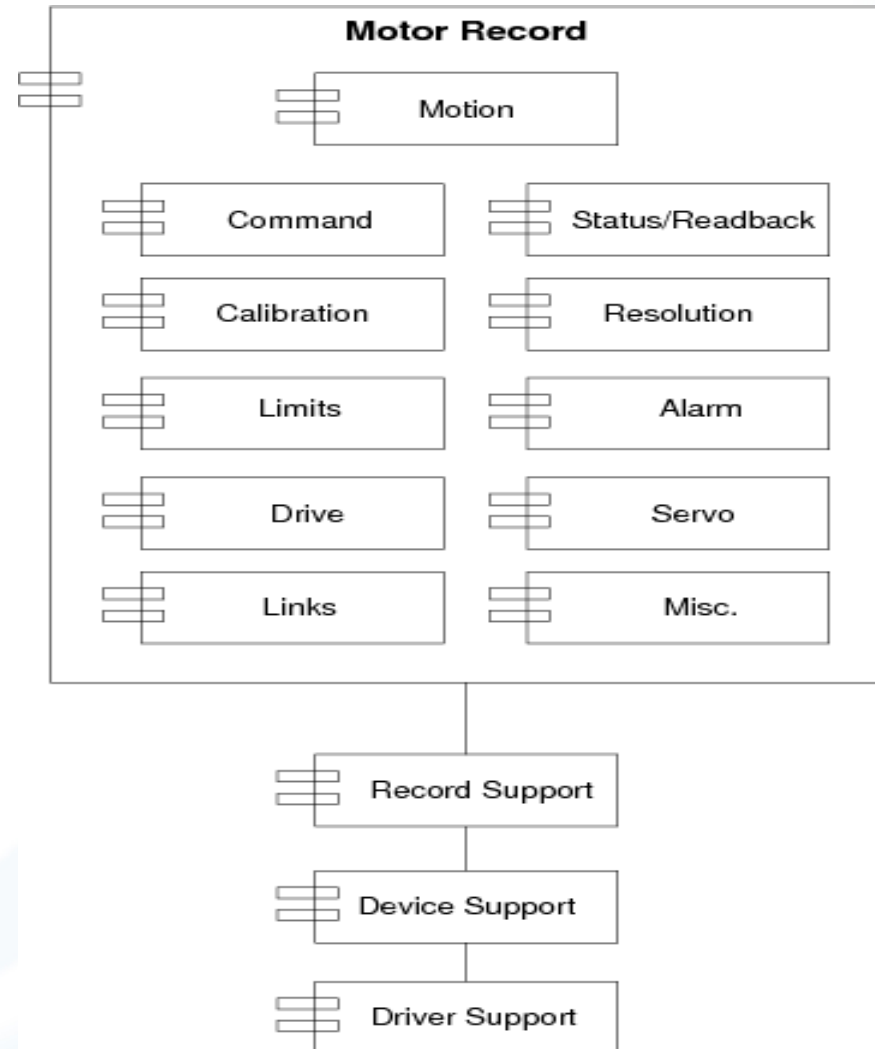


Ex: Insertion Device

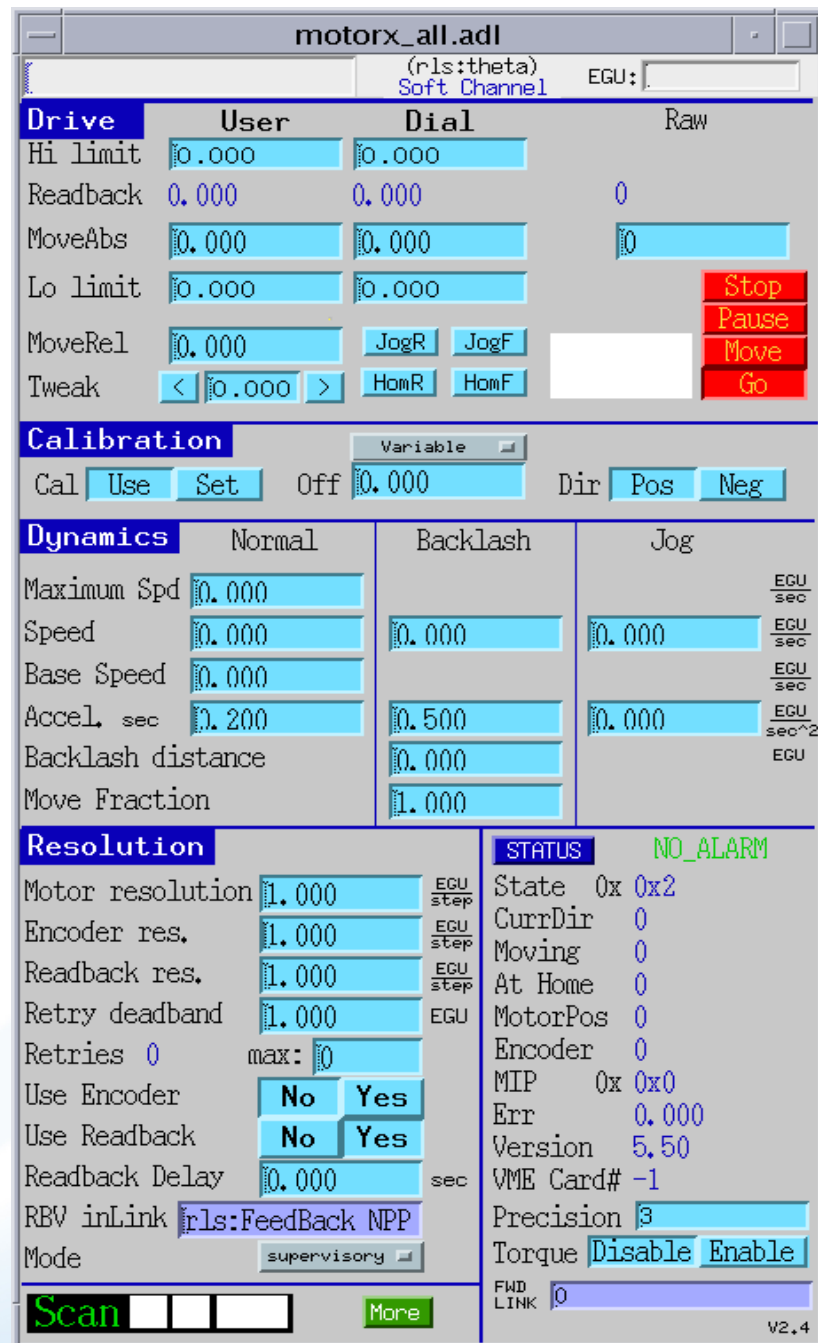
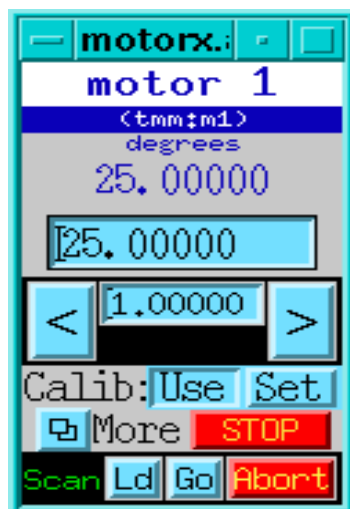


The Motor Record (v6.5.2 with Base v3.14.*)

- 3 co-ord systems
 - raw/dial/user
- Backlash correction
- Abs/relative moves
 - jog/home
- Readback from H/W or record link
- Ambiguous processing model
- Adds 122 fields to the 42 of **dbCommon**
- *motorRecord.cc*: 4000 lines

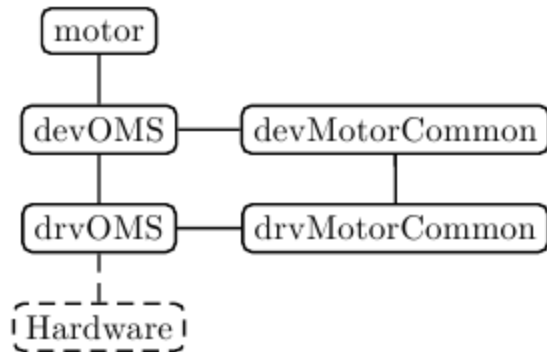


OPI Screens

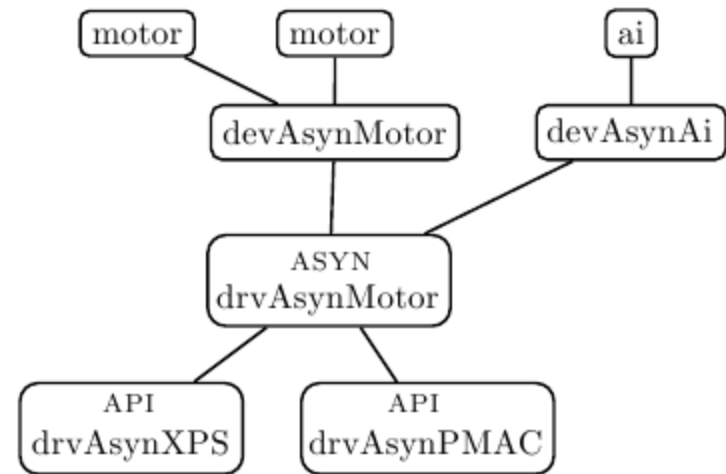


Hardware Support (1)

1st Generation Model

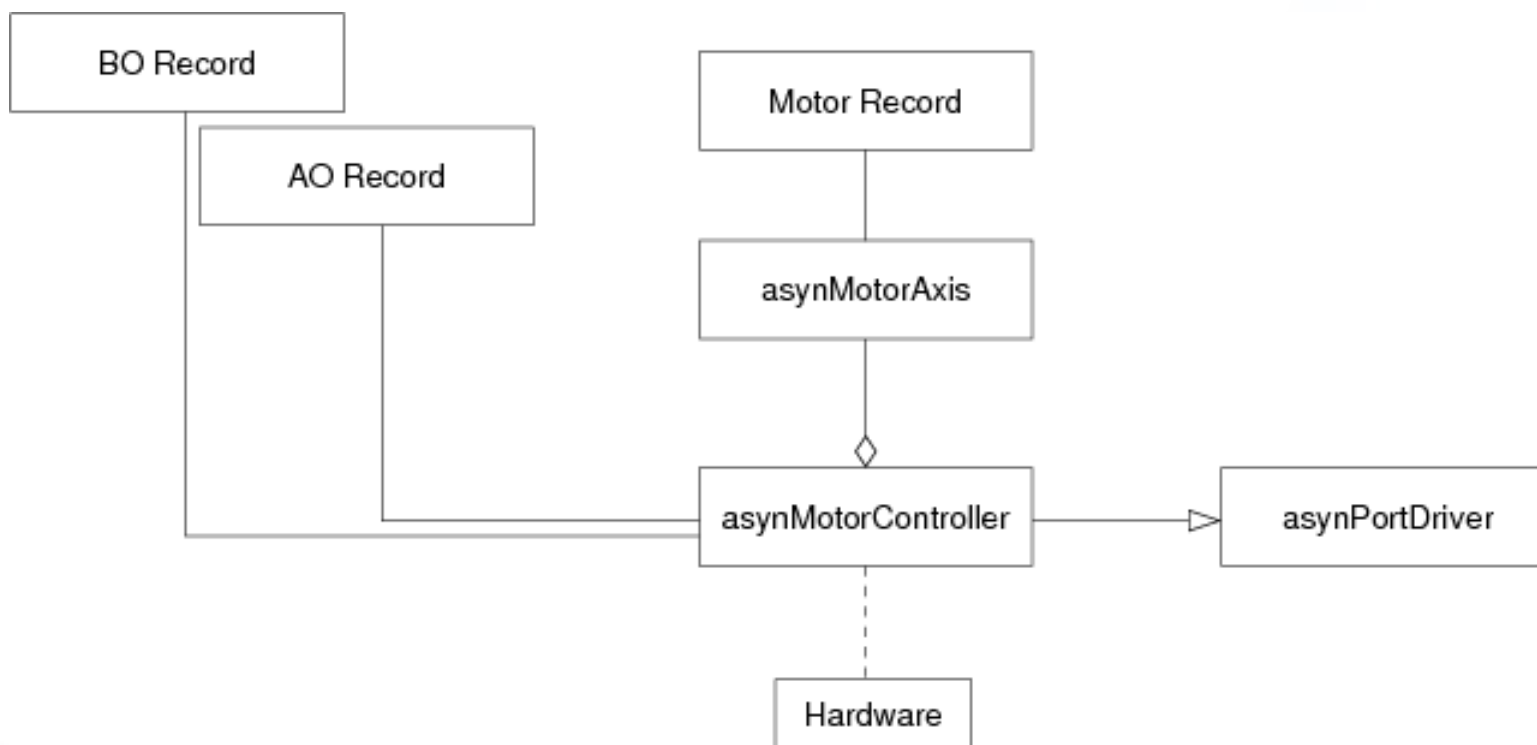


2nd Generation Model



Hardware Support (2)

3rd Generation



Motor Record Summary

Motor Record is not extensible

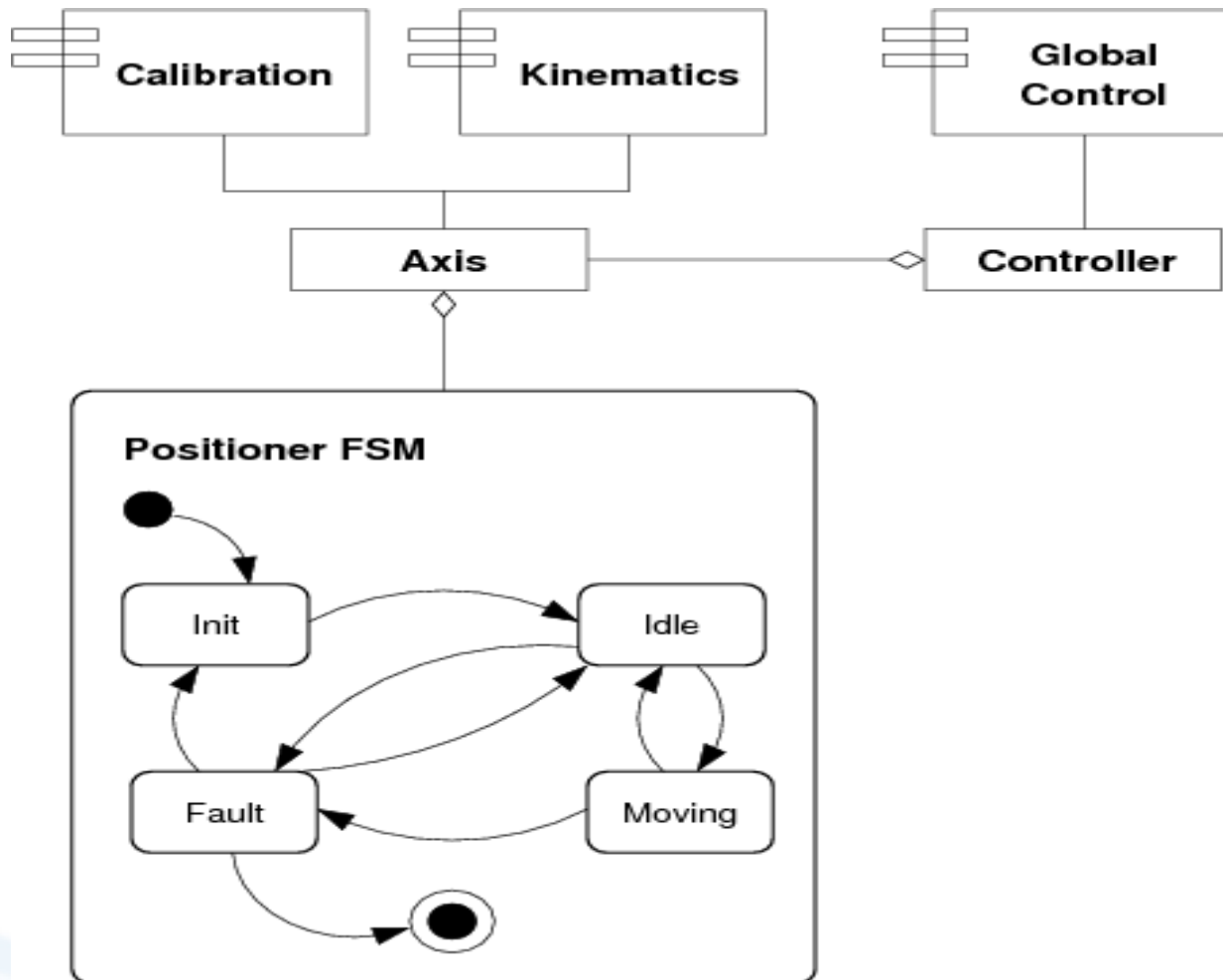
- State-machine is scattered throughout code
- Advanced controller capability is hidden
 - 3rd gen model helps
- Processing model ambiguity
 - *Busy Record's* raison d'etre
 - Consequence of state implementation

It is, however, ***the*** standard EPICS interface...

- Many client apps expect to see a Motor Record

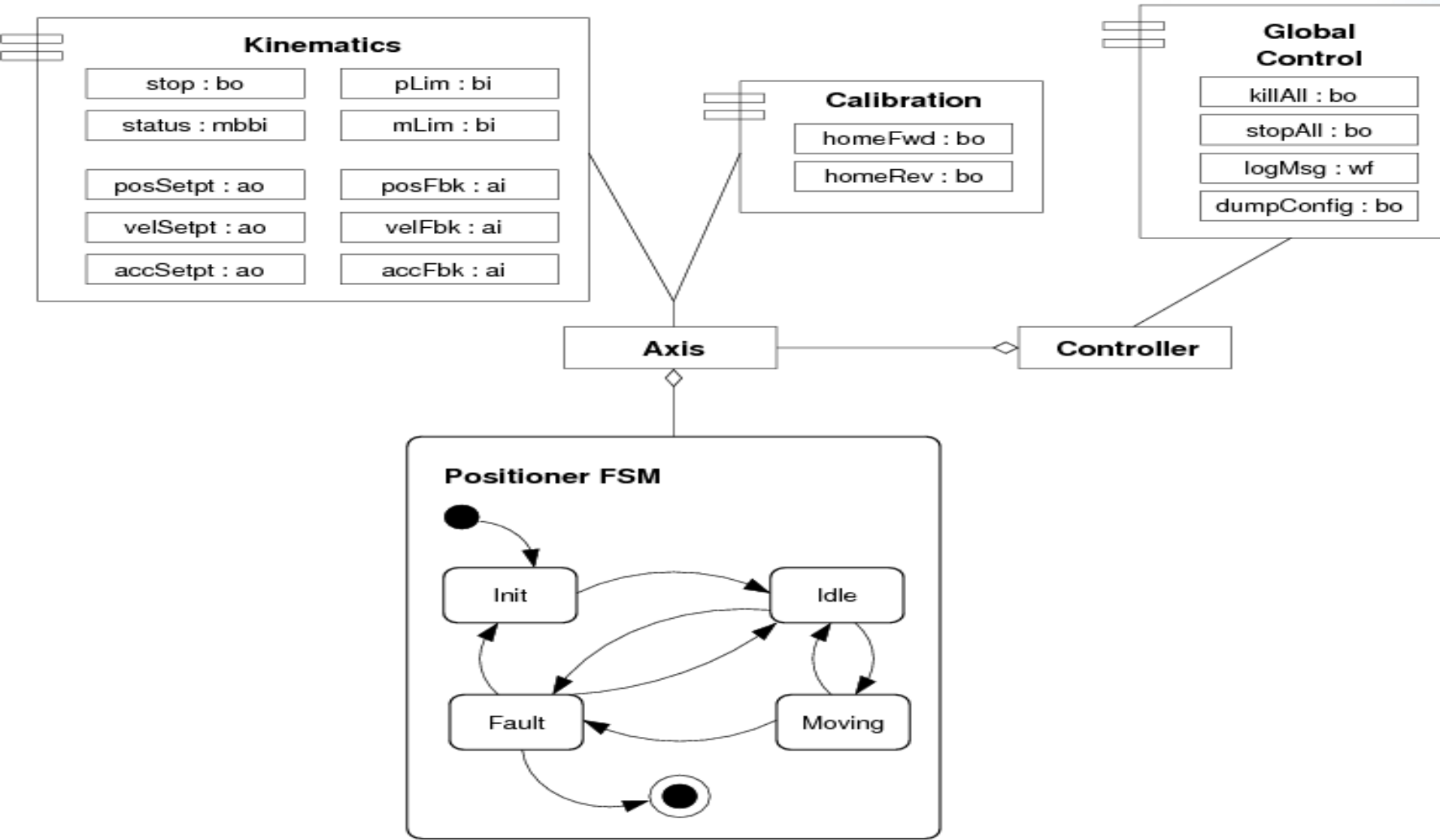
New Design (1)

Base-Record Approach



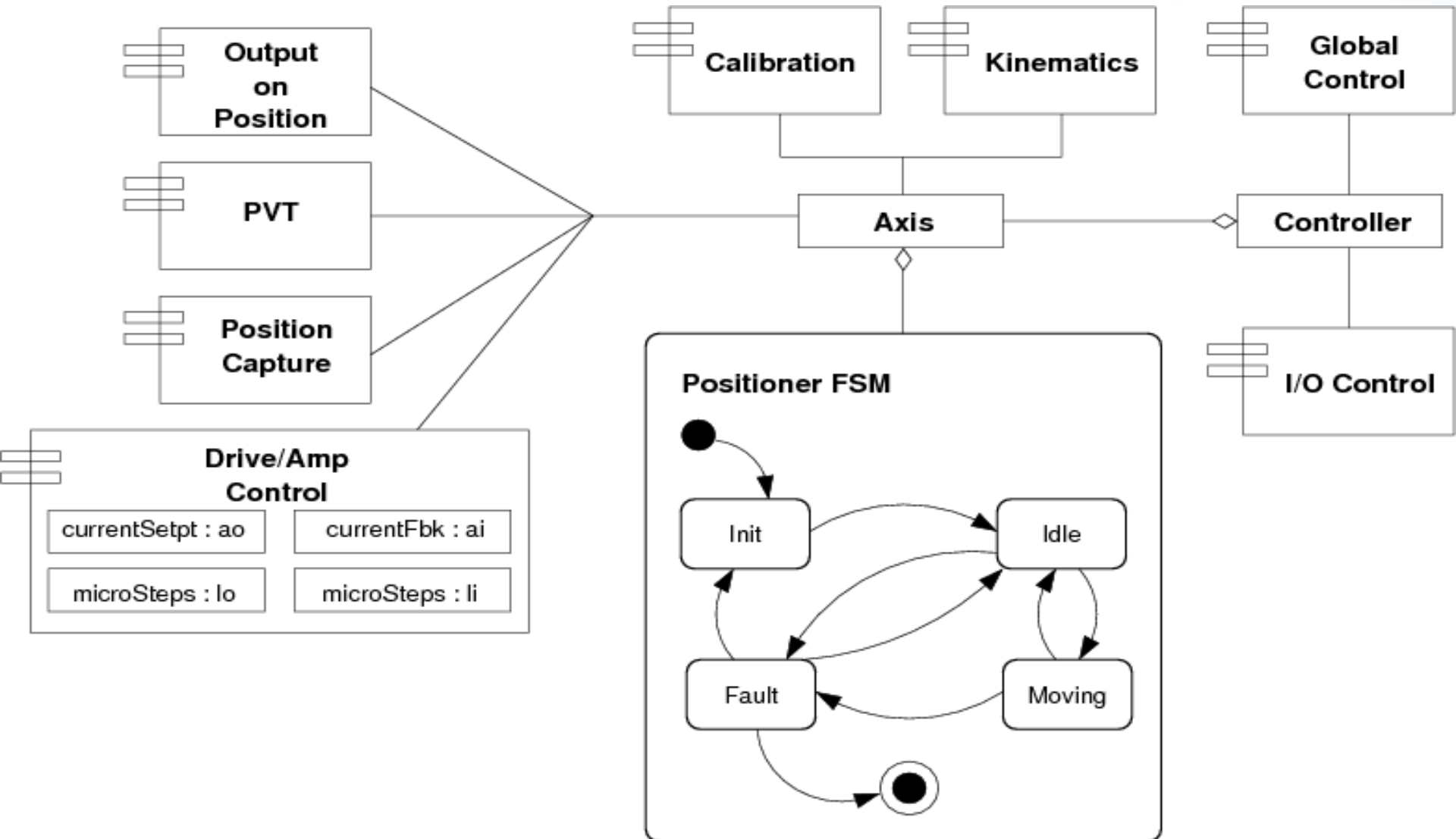
New Design (2)

Base-Record Approach



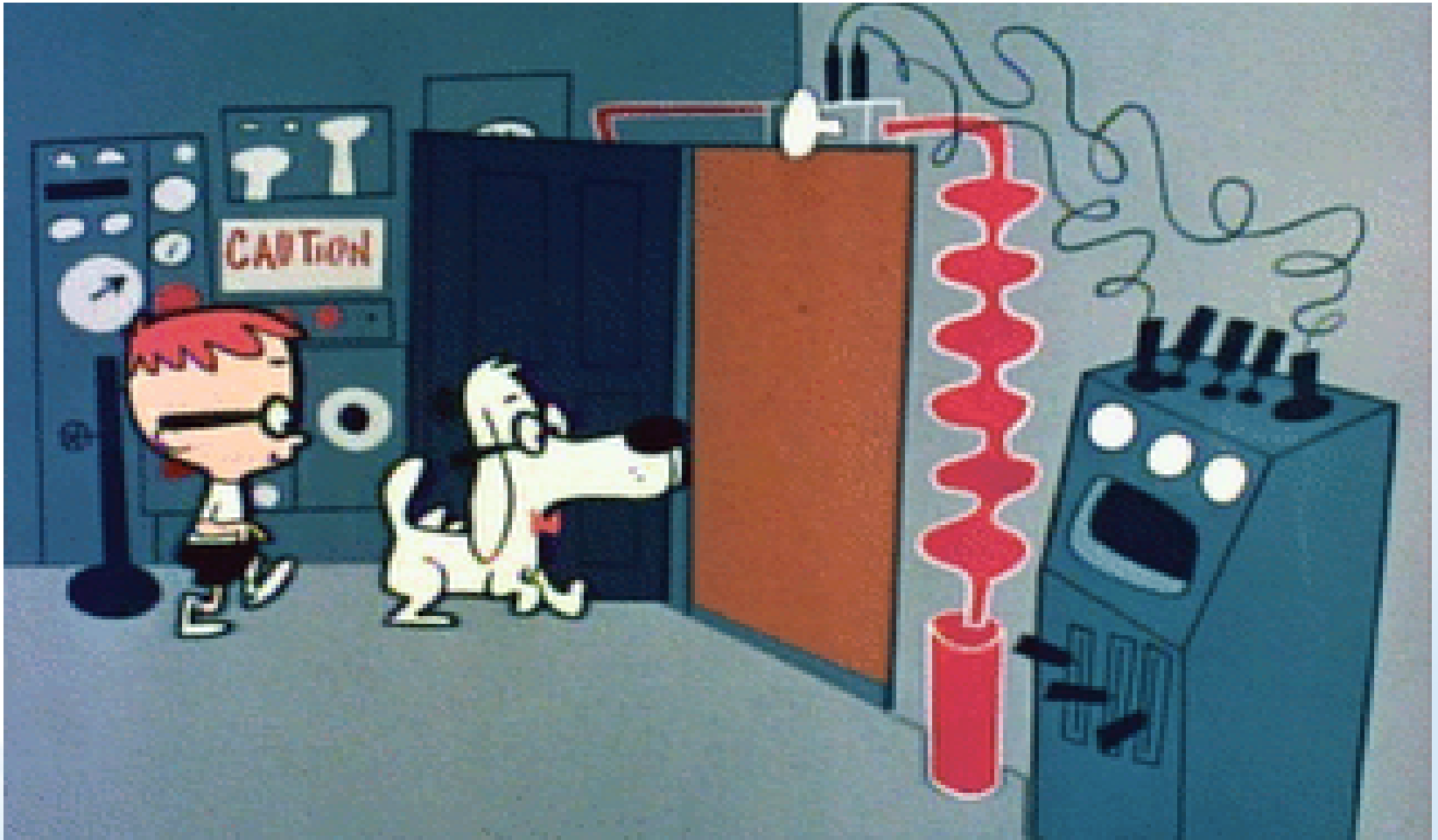
New Design (3)

Base-Record Approach



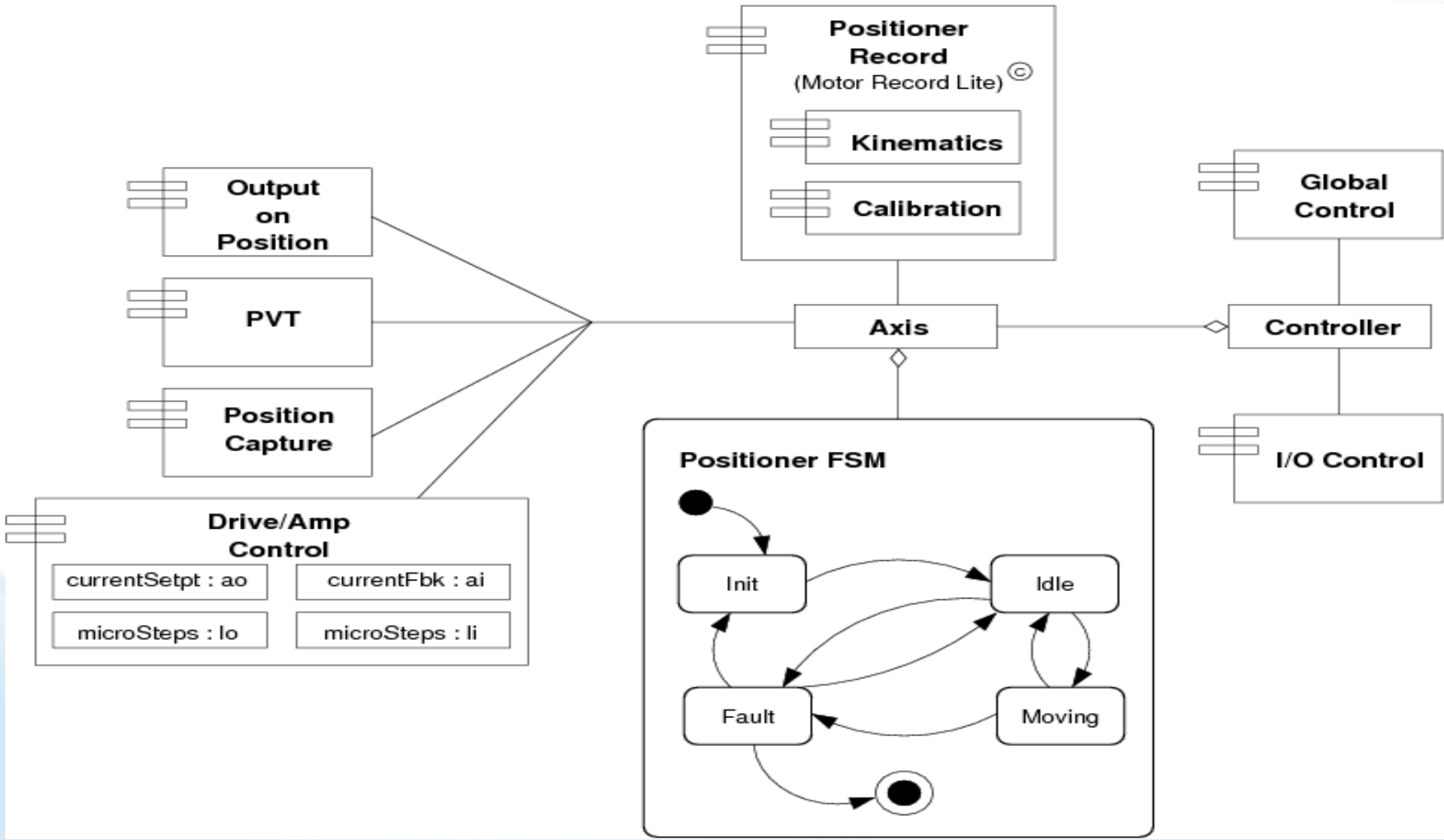
To the WABAC Machine!

Well, at least back to EPICS 3.13...



New Design (4)

Positioner Record



For Consideration...

Value of the Motor Record

- What does this give us?
 - Existing infrastructure

New Model + Implementation

- What does this give us?
 - Extensibility + Flexibility
 - Compatibility break :-(
- Which is the “right approach” ©
 - Pure base-records?
 - Base-records + Positioner Record?
 - Base-records + State-Record?
 - ???

Acknowledgements

Nick Rees, Peter Denison (DLS)

Mark Rivers (APS)

Tony Wilson, Dave Beauregard (CLS)